THE
TRAINING SCHOOL BULLETIN

FEBRUARY 1921

Mental and Physical Growth*

By Edgar A. Doll, Ph. D.
Psychologist, N. J. State Department of Institutions and Agencies

Introduction and Standpoints

The title of this paper calls for a description of child development from three points of view. The paper will deal successively with physical growth, mental growth and physiological explanations. The first two topics will include an attempt to outline such more or less gross aspects of child growth and development as are at present considered facts of science. The third topic of the paper will aim to co-ordinate these two groups of facts in a discussion of the mind-body relationship from the physiological or the bio-psychological point of view. I shall endeavor to avoid philosophical controversies of a speculative nature and shall adhere closely to a strictly scientific presentation.

One writer on child study distinguishes between growth and development. He contends that growth is vertical expansion while development is horizontal expansion in terms of a two-dimensional graph, or that growth is the quantitative aspect of child evolution (differentiation in bulk), while development is the qualitative aspect (differentiation in structure). This is a permissible biological distinction under certain conditions, as, *e. g.*, when the ameba increases in size before division or when a cancer grows larger by mere increase in the number of similar cells. It is more generally true, however, that growth entails development, or, if you like, that development entails growth. In this paper, therefore, I shall accept the biological law of Montessori (Pedagogical Anthropology) that:

*Read before the Psychological Seminar, Princeton University.

"Growth is not only increase in volume, but is also an evolution in form."

I shall, therefore, speak of growth as an evolution in which change in amount or degree is closely associated with change in kind or type.

Individual Differences

It is impossible to characterize the evolutionary states in child growth without challenging the auditor's criticism on the basis of individual differences in the traits and the stages described. No two organisms develop in exactly the same way in sequence, amount and kind of traits. Nevertheless, it is possible to describe some more or less general traits and some more or less definite stages in terms of the average or the typical individual. I shall, therefore, confine myself to typical traits and typical states, selecting only a few general characteristics for description and only comparatively broad states. Nevertheless, we may insist that individuals are more alike than they are different. Resemblances characterize the norm and differences individual. Here I shall accept Montessori's second biological law that: "The more essential parts vary less than the accessory parts in the course of their transformations."

Age-Periods

Growth is an evolutionary unfolding. New processes and forms develop so imperceptibly from old processes and forms that there is no very exact point at which the true inception can be placed. The determiners of each hereditary process or trait are already present in the germ cell. This much, then, of each organism's ultimate multitude of characteristics is infinitesimally present at the instant of germ fertilization. With each division of the germ cell there is *some* modification, however minute, of all the biological characters, some further development of the ultimate trait.

In spite of this imperceptible evolution it is practically correct to say that traits do "appear" in a recognizable manner at fairly definite stages and in a fairly definite sequence. We may distinguish the several colors of the spectrum and their order, although each hue blends with its neighbor. We may similarly easily recognize "nascent states" in such an organism as the frog, although to a minute analysis there is no positive break in the metamorphoses displayed.

Similarly, it is permissible and customary to recognize fairly definite stages in the physical and mental growth of children. Even

the most primitive races have been accustomed to make such distinctions in one way or another. Perhaps the most classical literary characterization of age-periods is Shakespeare's seven ages of man. Among primitive races and the early civilized nations the criteria of age have ranged from physiological characteristics to economic and social traits.

Anthropological studies of children have developed numerous criteria of age-periods. Some authorities base their groupings on osteological development, others on various aspects of physiological developments; some employ a pedagogical grouping, others a psychological classification, and so on, according to professional inclination. Baldwin sums it up as follows:

"It should now be recognized that every child has at least five parallel ages: A *chronological* age, in years, months and days (*'physical'* age or life-age); a *physiological* age, indicative of physical growth and maturity (embracing the strictly vital aspects); a *mental* age, significant of intellectual capacity and ability; a *pedagogical* age, denoting relative position in school grades; and a *moral* or *religious* age. These ages may or may not coincide in their stages of development."

The points I desire to emphasize are three: (1) It is desirable to characterize periods or stages of growth in order to avoid complications due to individual differences and to bring the subject-matter within easy mental grasp (2) it is possible to recognize fairly definite stages of physical and mental growth; (3) the demarkation of stages must include a well-rounded conception of growth from the standpoint of all the branches of science concerned in growth.

It is not necessary to have separate classifications of age-periods desirable to combine standpoints and construct a composite classifi- for each scientific standpoint. On the contrary, it is practically desirable to combine standpoints and construct a composite classification. Bigelow's description of age from the developmental-functional point of view is one of the best classifications. This author reckons age from the date of fertilization of the ovum, and describes two ante-natal periods as well as the post-natal period. The emphasis on pre-natal growth is well placed, and this period in the child's life deserves far more attention from students of child-psychology than is usually given by them.

Bigelow divides the post-natal epoch into eight periods, as follows: (1) New-born baby—birth to loss of cord (4 or 5 days); (2) early infancy—loss of cord to first dentition (7-9 months); (3) *later infancy*—first teeth to second teeth (7 years); (4) *childhood*—first

true molars to puberty (13-14 years); (5) *adolescence*—puberty to full stature (20-25 years); (6) *maturity*—from final height to climateric (45); (7) *middle age*—from climateric to waning of physical and mental power (60-75?); (8) *senescence*—loss of power to death.

Developmental Changes

In describing the characteristics of these age-periods there are two choices in mode of presentation. We may describe each period with respect to all characteristics, or we may detail the periodic growth of each trait separately. The former method is usually adopted. It lends itself to a more natural arrangement and gives clearer pictures of the periods of development. The latter method is, however, rather more logical and has the merit of contrasting the varying course of development in each trait.

I shall discuss two major aspects of growth, the morphological and the functional. In presenting the morphological and the physiological-functional aspects I shall follow Conklin's arrangement of organ systems. The functional aspects treated will include physiological development, sensory-motor development, intellectual development and social development. I shall henceforth employ "growth" as a term for changes in morphology and development for changes in function. The distinction is one of convenience and need not be insisted upon except for clearness in contrasting structure and function.

Physical Growth

1. *The Integumentary System*

The most important growth changes in the integumentary system after birth are changes in the hair and in the teeth. Children are ordinarily born free from hair except on the scalp, although occasionally the lanugo, or hairy-covering of the foetus, has not been shed at birth. Hair on the scalp may vary from a very thin covering or even total absence to a very full amount. A fair abundance is present by the end of early infancy. The first hair is shed within a few months after birth and is at the same time replaced with a more permanent variety. The second hair is ordinarily of the same color as the first, but may be strikingly different. Toward the close of childhood and at the beginning of adolescence there is a growth of hair in the pubic region. There is also during adolescence a more or less general, but light growth of hair on the arms and legs. At the beginning of maturity a third growth of hair takes place on the

face in males. During the period of middle age there is a graying of the hair, and ordinarily some degree of haldness. Baldness, in general, is not, however, a safe criterion of age, as it may occur normally at any time from the beginning of maturity. There are, of course, sex differences in the length of hair and in the absence of facial growth in women.

The teeth are part of the integumentary system, not a part of the skeleton, as is commonly supposed. They are formed prior to birth by an unfolding of the ectoderm layer of the blastula. This first set of teeth, or milk teeth, is ordinarily fully formed and present under the gums at birth. (Occasionally they are even fully erupted at birth.) At about the time of birth a second set of teeth begins to be formed as buds from the first set. These buds increase in size and crowd the first set through the gums. The first visible teeth then normally appear at about the seventh month. This is the end of our "early infancy" and is marked by the appearance of the lower incisors, followed rapidly by the upper incisors. The other milk teeth then appear during later infancy in a fairly definite order at fairly constant temporal intervals. By the close of the third year of life the milk teeth are all erupted. The eruption of the permanent teeth begins at about six or seven years and marks the beginning of "childhood." By the end of this period, or at the beginning of adolescence, all teeth except the third molars, or "wisdom teeth," are present. The third molars appear at the end of adolescence or early in maturity. Although there are some extreme individual differences in the eruption of the teeth, the order and time of eruption form one of the most dependable criteria of age during later infancy and childhood.

2. *Skeletal System*

The skeletal system is made up of the appendicular, the axial and the cranial bones. Changes in the appendicular group consist primarily in growth in length and in the ossification of the epiphyses. The long bones of the arms and legs increase in length and in hardness. During early infancy the skeleton is chiefly cartilaginous; during later infancy the bones of the wrist change from cartilage to bone in a definite order and at definite ages. During adolescence the ends of the long bones ossify. This process is complete at the end of adolescence. During maturity and middle age calcification continues, resulting in ultimate brittleness of the bones. There is also a loss of several inches in stature due to shrinkage in the articular cartilages.

In the axial skeleton the most significant change is the fusion of the five segments of the vertebrae. This is normally effected by the end of later infancy.

In the skull the primary changes are in fusion of the cranial sutures, changes in cranial form and changes in facial configuration. The bones of the skull are not fused at birth. There is partial fusion in the medial plane. The fontanelles, that is, the two openings between the sutures, close early in the period of later infancy (about fifteen months). As the brain grows larger in volume it forces a change in the form of the cranium, and this in turn causes changes in facial configuration. The cranium increases relatively more in breadth than in length and more in height than in breadth. Cranial growth is nearly complete at the beginning of puberty, and is finally complete at the end of the adolescent period.

The skeleton is, of course, the determiner of stature. Stature increases very rapidly in early infancy and continues at a rapidly decreasing rate during adolescence. Growth in stature is complete at the end of adolescence or the beginning of maturity. Very significant changes in *relative* stature occur toward the end of childhood at the pubertal transitional period. At this time the rate of growth is seriously unstable.

More important, however, than changes in height are the changes in stature-form. Many students of physical growth ignore these changes, yet physiologists are now assigning to them the ultimate determination of mental and physical character as a whole. Montessori's Fig. 16 (Pedagogical Anthropology) is a striking representation of these changes. Observe that in early infancy the skull constitutes two-eighths of the total stature and at maturity only one-eighth; that the legs change from three-eighths to four-eighths of the total; that the relative length of the trunk is the same at both periods; that in infancy the arms are longer than the legs and at maturity this relation is reversed. In general, the growth is toward a new *type* or form of organism. This growth in form affects changes in function and internal organ systems that are most profound.

3. *The Motor System*

The growth in the motor system involves no special morphological changes. The motor system is complete at birth. To be sure, there are changes in volume and the concomitant changes in form due to the skeletal changes, but these play a subordinate part in total bodily growth. The changes in the motor system are chiefly problems in co-ordination and control and will be treated as functional changes.

4. *The Alimentary System*

Only minor organic changes take place in the alimentary system. As in the motor system, the changes are primarily functional (stomach changes, lymphatics). Very important changes take place in the growth of the glands of internal secretion, changes which are perhaps more significant for psychology than all others. To discuss them, however, would lead me too deeply into a new field of science, endocrinology or hemadenology, the science of the ductless or blood glands, the glands of internal secretion.

5. *Respiratory System*

There is no functional change organically in this organ system. As the child grows older his lungs increase in size and there is a change in shape corresponding to thoracic changes in skeletal form.

6. *Circulatory System*

The circulatory system also is complete at birth. The ductus arteriosus closes about the seventh day or at the end of the newborn baby period. With increase of age there is a decrease in the flexibility of the arterial walls ending finally in arteriosclerosis and effecting a rapid rise in blood pressure. The most significant changes are in the composition of the blood stream itself. The number and kind of blood corpuscles and lymph bodies change significantly with age and are important factors in children's diseases.

7. *Excretory System*

As in the alimentary system, there are no serious organic changes in the excretory system.

8. *The Reproductive System*

Profound changes of the utmost importance take place in the sexual system. These organic changes entail still more important changes in physiological development. In boys the testes are undescended at birth. The descent takes place normally within the first two months of early infancy. The sex glands are relatively inactive previous to adolescence, but show marked changes morphologically. Growth in this organ system and its relation to mental development and character is still obscurely described in the literature. The principal changes are physiological rather than organic. Among girls the mammary glands develop during the period of adolescence.

9. *Nervous System*

Like the motor system, the nervous system is complete at birth with respect to the number of its fundamental accessories. The increases are principally those of volume, elaboration of processes, and myelina-

tion. The total number of neurons is complete at birth. Yet the brain increases nearly 300 per cent. in volume during the first year. At the age of five years the brain is about 90 per cent. of its ultimate size. This growth in volume is effected not only by increase in volume of the nerve cells and connecting fibers, but also by growth of the glia cells which constitute the supporting tissue of the brain. Full brain weight nearly at about fifteen years.

An important feature of growth is the medullation of the nerve fibers. The nerve fibers are thought to be non-conductive or otherwise imperfect in function until covered by the medullary sheath. This myelination takes place very early and progresses rapidly during the period of early infancy.

Another important morphological change of great importance is in the growth of the cortical layers. Recent histology of the cortex distinguishes three main cortical layers which subserve definite mental functions. These layers are the infragranular, the granular and the supra-granular. They are now thought to control, respectively, the sensory-motor mechanism of instinctive tendencies, sensory-motor co-ordination and control, and the higher intellectual processes. The growth of the infra-granular or instinctive layer is nearly complete at birth and is finally completed before adolescence. The granular layer is about 50 per cent. of its ultimate growth at birth and attains practically all of its growth during later infancy and childhod. The supra-granular layer is only a scant third of its ultimate thickness at birth, grows slowly during infancy, increases rapidly during childhood and adolescence and attains its final thickness at the beginning of maturity.

10. *The Sensory System*

This system includes the special sense organs. These organs are fully formed at birth and the morphological changes are relatively slight. They become completely functional in miniature during the period of early infancy. The eye, particularly, however, shows slight changes throughout life.

(To be Concluded)

No amount of money will enable us to obtain good teachers for the schools in sufficient numbers until there are means of preparing them. For this there must be more normal schools and other training schools for teachers and they must all be much better supported than they are now.—*Claxton.*

On Institution Management

E. R. Johnstone

Staff Meetings

Dear Robinson:

Now that your institution is an established fact, you want to know about staff meetings or what we call executive meetings; what they are and who should attend.

The first executive meeting I ever attended was in the old days at the Redmand State School about twenty-five years ago. The Superintendent thought that it would be a good plan to get together the heads of his big divisions, medical, education, business, farm and household, to discuss the work of the institution.

The meeting was held, but had hardly started when the discussion began on a line of policy—semi-professional in character. There was apparently a real disagreement between one member of the staff and another, and in a few minutes they were at each other hammer and tongs, and the meeting nearly broke up in a row. I don't remember now just what the question was, but I do know that there was never another meeting of the executive staff of that institution.

I had a feeling at the time that the discussion had been carried on in the wrong way, or rather that two people had been permitted to hold an argument to the exclusion of the others and that each had lost sight of the real question. It seemed as though each was endeavoring to show the rest of us that he could "down" his opponent in an argument. It was also unfortunate that one was professionally trained and the other was not; also one was a man and the other a woman. Both combinations are bad for discussion, and argument in such cases seldom accomplishes any real good. At all events, one of those folks "got mad" and for many a day there was "feeling" between the two departments.

Somewhere I read, long ago, that when military officers hold staff meetings the officer who is lowest in rank is required to open the discussion on any question and to say what he has to say before any one of the higher rank speaks. Then comes the next in rank, and so on *up* the line in perfect regularity, the senior officer speaking last. This has many advantages. It makes each junior speak his piece, knowing

that what he says is subject to criticism or question all along the line, so he is careful what he says. He knows that he will not have a chance to speak again until everyone else has had a chance, so he tries to say all that he has to say. Knowing that all of the rest are impatient to have their turn, he is brief. Incidentally he gets lessons in marshalling his facts in order and presenting them succinctly.

This plan also prevents an officer of higher rank from suggesting a plan inferior in value to one that may be presented later by an officer of lower rank. This might be an embarrassing situation, for it might appear that the junior knew more than his senior, and it is bad for discipline to show such a condition, even though it be true. It also prevents a higher officer from presenting his side of the case too soon, and so shutting off the views of his juniors because the latter are perhaps timid about appearing to contradict or disagree with their senior.

There is still another advantage, for, presuming that the order of rank is also the order of ability, the most able officers have the opportunity to hear all sides of the question before they give their views, and, therefore (as should be), their opinions are of greater value and carry more weight.

When you hold your executive meetings, therefore, decide in your own mind which members of your staff are supposed to know most about the subject under discussion and call upon them last. Start with the one who knows the least about it or whose duties touch it least and proceed up the line. And *you* do the calling. Do not let anyone just break in. You will find (unless you are not particular about getting to some definite end) that you must control the situation from start to finish. By doing this you will have less friction, less wasted time, and much more satisfactory results.

If you are talking of health or sanitation, start with your farmer and wind up with your physician. If it is an agricultural matter that is being considered, reverse the order. If educational, let your principal have the last word. Let everyone speak, for you may get very good ideas from unexpected sources, but let your most expert member say the final word.

If you let the discussion just come as it will, the chances are that several will have nothing to say. Some will be too diffident; some will be afraid that what they have in mind may be considered foolish by those who know more of the matter in hand; some may feel that they may not be able to express what they have to say clearly. Any-

how, you will lose the opinions of some. You will have but one or two sides to a question and the vote will only consider a part of the evidence, and as often as not, will not really give a fair answer.

Be a little careful of your own attitude in the matter. If your people are loyal and believe in you, they will give great weight to your slightest word. If you speak too soon they may only reflect your opinion instead of giving their own as they would have if you had said nothing. Then again, they may not speak what is in their minds, preferring to say nothing, even if they think you are wrong, rather than to hurt your feelings. Or perhaps in what you say you may give the impression that you have your mind made up to do a certain thing anyhow. In that case, many of your staff may feel that it is useless to discuss it. Unless you are very careful it will be hard to make them know that when you bring things to meeting you are going to act as the meeting decides.

Now is a good time for you yourself to get out of your mind the idea that the superintendent knows more about the workings of the various departments than the heads of those departments do. It is a very weak and a very much limited superintendent who proceeds upon that principle. It is true that a stream can rise no higher than its source (and, after all, the superintendent is the source of the institution), so such an institution stream would not get very high.

I believe that any great enterprise is but the shadow of a man, but don't forget that that means the spirit of a man, not his physical or mental self.

Your job is not to run the departments, but to find people who are competent and fitted to run them. To express it a little differently; a good student doesn't need to know very word in the dictionary, but he does need to know that every word is in the dictionary and where the dictionary is.

Therefore, in your executive meetings you will find it a good plan to put yourself in the attitude of the judge. Sum up the evidence, if you please; even charge the jury, and then let them all vote. If you cannot convince at least a majority of your executives to a certain line of action, it will be difficult to convince others, and the chances are that the step proposed is not a wise one.

Sometimes I have felt that the opinions of some of the members of the staff should be "weighted," as the psychologists say. For example: in considering a matter of business the vote of your chief

clerk should perhaps be valued at three or four times that of your matron.

One other thing to remember, as your institution grows older, you will find on your staff those whose length of service and experience fits them better to speak in a certain field than, perhaps, the head of the department involved. You must in that case give greater weight to your experienced officer than his job would ordinarily get.

In the staff discussions you must keep out personalities. In giving illustrations it may easily happen that the name of someone in another department is used, coupled with a criticism; this will frequently arouse resentment; the temptation to retaliate is great, and the first thing you know you have a series of sly digs under cover of discussion. Great skill will also be required to make your speakers stick to the point under discussion. Some of your folks will get so interested in their own speeches and be so satisfied that they know all about it that they are likely to run far afield, and before you are aware you will all be lost in a maze of ideas that have no real bearing on the subject.

Incidentally it may be remarked that if you want good training to enable you to be the chairman of any kind of a meeting, you can get no better experience than by holding meetings of your own staff.

It is always advisable to have each member bring to the meetings a note book and one member should act as secretary. The keeping of minutes and the reading of them has a tendency to keep things from being lost or forgotten from meeting to meeting. If each one keeps notes for himself, he will not go away from the meeting, find something important to demand his immediate attention and promptly put out of his mind the matters discussed. Frequently it occurs that a thing is settled; nothing happens concerning it for several months; everyone will have forgotten what was decided; but the old minutes or the note books tell just what was done and why, and you are saved going all over the subject again.

I have not told you who should attend these meetings.

At first, while your institution is young, call only your chief officers. The heads of your business, medical and household divisions will do for a start. Soon you will find yourselves discussing matters that need to be carried to other departments, and you will feel that the heads of those departments could contribute to the dicussions. Then is the time to call them in, when you feel that they need it or that you need them.

By doing it this way your most important officers will see why the others are called (indeed, I have always let them vote upon who shall come in), and they will not be jealous of those who (in their opinion) hold positions inferior to theirs, but who are nevertheless allowed an equal voice with them in discussing the affairs of the institution. Those who come later will appreciate being taken into the executive meeting, and you may find it well to send a note of appreciation of their past work, direct from yourself, when you invite another department head to sit in your meetings. This will make it a little more formal than a phone call from one of your clerks. It makes the recipient feel that you have given some thought before inviting him to be a regular staff member, and it emphasizes the fact that to be such is really a privilege.

Some of our staff were not invited to these meetings until they had been in the institution several years, and it is a good plan to go slow in asking the new department heads in. Personality is of much greater importance than position.

Better to let newcomers, even in important positions, grow into the institution than to attempt to plant them at once into what is, in fact, your inner circle.

As the institution grows older you will find your executive staff inclined to be a close corporation. You may wish that this be not so, but it is. These are the people who have gone through the trying times with you. They have helped to solve many problems and to set many policies. Consciously or unconsciously they resent the coming in to their circle of close understanding one who seems like an outsider. When such a person comes into the institution he sees many things that he doesn't understand. All is new. He is a constant question mark and will ask many questions that have long ago been discussed, settled, and put on the shelf.

If these questions are in any sense a criticism they will be resented and that new person's usefulness will be greatly impaired in the future. Do not forget that the person who has spent many years trying to perfect his work is especially sensitive to the sort of criticism that does not understand all that he has been through.

If, however, you keep a new person out of staff meeting until he has become pretty well oriented and if you yourself will give him an opportunity to discuss "reasons" with you, then when you do take him into your staff meeting he will come more as one of you. By this time, too, he will learn many of the things that have been tried out.

Now he has a real opportunity, for, if he is the right stuff, he will bring new views of old questions. He will bring the last word of conditions and methods in use in other places, but instead of being resented, his questions and suggestions will be welcomed. It is indeed a wise man who can slip unobtrusively and non-irritatingly into an old-established staff meeting. But if he will be considerate, if he will realize that *most* of the questions that can arise in an institution will have been discussed and policies shaped long before the institution is ten years old, if he will "feel the atmosphere" and quietly wait for further light before plunging in too deeply, then he will form a valuable addition. But it is your job to prepare him and *give him time.*

Go especially slow in asking in assistants to your department heads, but when you do find that their division is important enough or their general institution experience is sufficient, then do not hesitate. But do not bring in an assistant without the approval of his chief. Whenever the time is ripe, I have found that the department head is usually the one who suggests it.

After nearly fifteen years, my executive meeting was made up of the Assistant Superintendent, who was also head of the industrial department, the Chief Clerk, the Principal of Schools, the two Matrons, the Hospital Supervisor, the Dietitian, the Storekeeper, and the head of the Agricultural work; as well as the Directors of Research and Extension and the Manager of the Colony. These people all had equal rank except when the Superintendent was absent. If you had attended several meetings, without knowing, you might well wonder who really was the superintendent's first assistant. If the matter under discussion related to education, after you heard the discussion and the decisive statements of the Principal, you would possibly go away feeling that the Principal ranked next to the Superintendent. But the next meeting might be about a business matter, and now you would think it the Chief Clerk, while at another meeting on foods you might think the Dietitian was the first assistant.

In actual practice the real authority does rest with different department heads, depending upon what is being done, and you will find it more satisfactory than a series of assistants always ranking in a certain order.

Of course, you understand that you must have other meetings besides that of your executive staff. General employes' meetings with all present, and special meetings of your teachers, or farmers, or other

specialized groups are most necessary. But your staff meeting should cover the entire field of the institution's activities. It should be formally, informal (you will know what I mean after you have held half a dozen). It must know all of the big things that the institution proposes to do, and it must keep in touch with the little affairs. Through it, more than in any other way, you may mould and shape the policies of your institution, and if you can imbue this group with the spirit you wish to have, it will permeate every nook and corner and find its way into the heart of every child.

Select your department heads carefully, keep them inspired, give them your full confidence and they will return it many times over.

A Suggested State Program

Ten years ago the New Jersey Committee on Provision for the Feeble-minded recommended:

(a) Medical inspection of school children. Now required in every school district. (Chap. 92, laws of 1909.) The medical inspection should go farther than merely to detect contagion, sanitary conditions, etc. Eye, ear, nose, throat and teeth should be carefully examined and all remediable conditions corrected.

(b) The primary children of every school district should be examined by the Binet Measuring Scale for Intelligence or something equally effective, and as soon as possible a method should be adopted which shall be uniform throughout the State.

(c) In every school district in which there are ten or more children who are four or more years behind grade there should be established special classes. (Chapter 234, laws of 1911.)

(d) Backward and feeble-minded children should be placed in such special classes as long as it is safe to keep them in their homes, and the training should be largely industrial and manual. This will relieve the State and the community of a great deal of the expense of their maintenance.

(e) All feeble-minded children of every grade who cannot properly be kept in their homes and sent to the special classes should be sent to a training school, where, in so far as possible, they should be trained for the lives they will live when they become men and women in years.

(f) All feeble-minded women of every grade should be provided for at the State Institution, where they shall find proper care and be given such profitable occupations as they are able to follow, such as small fruit and poultry raising, gardening and floriculture in summer, and needlework of various kinds, the weaving of stockings, underwear, carpets and rugs in winter; supplying not only their own needs, but also those of other wards of the State.

(g) All feeble-minded men of every grade should be provided for at a State colony for males, where they shall have proper care and be given such profitable occupations as they are able to follow, such as farming and even manufacturing on a small scale.

(h) The scientific departments at the institutions should have every encouragement, for the time for mere custody is past. This is the day of preventive measures, and nowhere is there such an opportunity to study means of prevention as in the institutions themselves.

Every public institution should be a laboratory for the study of its problems.

It is not a curious kind of logic which says in substance to a child who has committed an offense, the chances are one in four that you are feeble-minded and couldn't help it, but I will let you commit another crime and then I will examine you and find out.—*Goddard.*

Suggested Reading

Education Through Play—Henry S. Curtis.
The MacMillan Co., New York, 1915.
Stuttering and Lisping—E. W. Scripture.
The MacMillan Co., New York, 1912.
Mentally Defective Children—Alfred Binet and Th. Simon. Translated by W. B. Drummond.
Longmans, Green & Co., New York, 1914.
Clinical Studies—E. A. Doll.
The Training School Laboratory.
The Problem of the Nervous Child—Elida Evans.
Dodd, Mead & Co., New York, 1920.
The Mind and Its Education—George Herbert Betts.
D. Appleton & Co., New York, 1906.
The Spirit of Youth and the City Streets—Jane Addams.
MacMillan & Co., New York, 1909.
Porteus Tests—Vineland Revision—S. D. Porteus.
The Training School Laboratory.